

ATOMIC ENERGY

THE FIRST AND ONLY ATOMIC NEWS SERVICE

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Dear Sir:

The release of more information on atomic weapons was advocated by President Eisenhower in Washington last week. The President claimed that the Atomic Energy Act of 1946 imposed limitations on the kind of atomic information that could be given out. Now, he said, since other countries have made atomic bombs, it would seem that parts of the law are outmoded. He also advocated a cooperative attitude with this country's allies in the exchange of atomic information. Representative W. Sterling Cole, Chairman, Joint Congressional Committee on Atomic Energy, said later that further information, such as the President advocated, could be released without any change in the law. The procedure, he said, would be for the USAEC to declassify data, clear it with other Government departments, and then with the Joint Committee. However, he saw no possibility of such action during this session of Congress, which is planning to adjourn this July 31st.

The Joint Congressional Committee on Atomic Energy, which has been holding hearings in Washington on the general issue of how to create and run the future atomic power industry, heard a suggestion from Under Secretary of Commerce Walter Williams that the Federal Government might charge for use of facilities and knowledge in the nuclear field. Representative Carl T. Durham said that such charges might be like leases on Government oil lands. In discussing patents, Secretary of the Interior McKay told the Committee that he was opposed to granting exclusive patents to any group that took part in such developments. He urged that the benefits of atomic energy be spread over as wide a field as possible. Elaborating on this thought, Under Secretary of the Interior Williams said that such benefits should be made available on a non-discriminatory basis to both large and small business and to all geographical regions of the United States. (These public hearings, now under way, follow some two months of secret sessions of the Joint Committee with USAEC officials and industrial leaders. Now before the Committee are: a measure to modify the atomic energy statute (H.R.4687, introduced by Rep. VanZandt); a draft bill prepared by the USAEC at the request of the Committee; the recommendations of several groups of corporations invited to study the possibilities of industrial nuclear power; and protests against revision by two Democratic members of the Committee, Reps. Holifield and Price.)

The convention setting up the European Organization of Nuclear Research, at Geneva, Switzerland, has now been signed by twelve European nations. This convention will go into effect with the ratification by parliaments of the nations concerned. Signing of the convention took place at the French Ministry of Foreign Affairs, Paris, after eighteen months of negotiation under UNESCO auspices. The twelve nations involved in the project are Belgium, Denmark, France, Britain, West Germany, Greece, Italy, The Netherlands, Norway, Sweden, Switzerland, and Yugoslavia. By combining their resources, these nations hope to keep Europe on a par, in the field of nuclear developments, with the United States.

BUSINESS NEWS...in the nuclear field...

NEW CONTRACTS AUTHORIZED FOR ELECTRICAL SUPPLIERS TO NUCLEAR PLANTS: The USAEC has now received authority, through a new bill passed by the House of Representatives in Washington last week, to sign twenty-five year power contracts which include new, higher, cancellation clauses, with utilities supplying nuclear plants. The new cancellation clauses obligate the Government up to \$340 million; under previous legislation this was limited to \$57 million. The electrical energy involved is 1,730,000 KW for Oak Ridge from TVA; 1,205,000 KW for Paducah from TVA, and 735,000 KW from Electric Energy, Inc., also for Paducah; and 1,800,000 KW from the Ohio Valley Electric Co. for Portsmouth. Estimates are that these two utilities, and the Tennessee Valley Authority (TVA), will invest more than \$1 billion in new plants and expansion to supply the electrical energy for the nuclear plants. Representative W. Sterling Cole, chairman of the Joint Congressional Committee on Atomic Energy, said in Washington, last week, in connection with this new legislation, that this cancellation payment is necessary, since if the USAEC were to be closed, the utilities would have trouble finding other users for the power.

NEW HEAD FOR FIRM PROMINENT IN NUCLEAR FIELD: New president of Vitro Manufacturing Co., is J. Carlton Ward, Jr., engineer and executive, who has been prominent in the aircraft industry. Mr. Ward was president and chairman of Fairchild Engine and Airplane Corp. from 1940 to 1949. At Fairchild, he founded and headed, for the U.S. Air Force, and the USAEC, the Nuclear Energy for Propulsion of Aircraft (NEPA) project, a cooperative enterprise of ten United States companies, which carried on at Oak Ridge basic research in this subject. (Mr. Ward was ousted from Fairchild in a stockholder's disagreement. He was opposed by Sherman Fairchild, holder of a large block of Fairchild stock, who secured sufficient proxy support to elect his own president.) Vitro Manufacturing Co. is engaged in the development and manufacture of chemicals and pigments, and processes uranium-bearing materials, for the USAEC, which are imported into the United States. A subsidiary, Vitro Chemical Co., processes uranium-bearing ores on the Colorado plateau for the USAEC. Another, and its largest subsidiary, Vitro Corp. of America (formerly Kellex Corp.), does engineering, research, development, and design of processing and manufacturing plants and other technical facilities. It is particularly active in nuclear plant work.

ATOMIC ENERGY DIVISION ESTABLISHED: An atomic energy division has now been set up by Kaiser Engineers (a division of the Henry J. Kaiser Co., Oakland, Calif.) Division manager of the new atomic energy division is J. H. Hayner, formerly of the USAEC. P. D. Bush is assistant division manager. Kaiser Engineers, though this new division, will explore various approaches to industrial uses of nuclear energy, including power and the utilization of radioactive by-products, a spokesman for the firm stated. Mr. Hayner was assistant plant manager at Oak Ridge, when that installation was put on stream by the Manhattan district, USAEC predecessor during World War II. He was later connected with Brookhaven National Laboratory, and subsequently in the Division of Engineering, in the USAEC's Washington headquarters office. In 1952, Mr. Hayner worked for the Government of Brazil studying the possibilities of launching an atomic energy program in that country.

SAVANNAH RIVER PLANT ACTIVITIES INCREASE: With the continual progress being made at the new Savannah River Plant (first U.S. plant for large scale production of materials for "hydrogen" bombs) employment of individuals in the operations section is expected to reach 5,600 by December of this year, the USAEC has now officially estimated. At present, some 4,684 persons are employed in operations at the plant, with 23,759 construction workers engaged in building activities there. The plant, being erected by du Pont as prime contractor, and which will also be operated by du Pont, is expected to eventually employ approximately 7,100 as a permanent operating force.

CONSTRUCTION ADDITIONS AT NATIONAL REACTOR TESTING STATION: Among new work being undertaken at the Testing Station, in Arco, Idaho, is construction of an electrical sub-station, and appurtenances, at the site of the facilities for ground testing of a prototype aircraft propulsion reactor. Other work includes construction of a reactor services building as a two-story wing to the materials testing reactor building, and electrical work in the chemical processing plant area.

ATOMIC ENERGY POLICY...current Washington action...

The New Budget for the USAEC: Some Highlights-While the 1954 USAEC budget, as approved by House of Representatives vote, was some 30% below requested funds, with a cut of \$22 million in the nuclear reactor development program, present prospects now indicate an increased rather than a decreased emphasis on government sponsored nuclear power development.

One aspect of power development is Defense Department approval of an Air Force plan to proceed with nuclear powered aircraft development along a new, highly promising approach. This new approach involves elimination of the heat transfer system in the transformation of nuclear into electrical energy.

Adjustments have also been made in the original decision to withdraw military backing for nuclear power plants for warships and industrial use. Originally, it was decided to cut the funds for a land-based prototype for a nuclear-propelled aircraft carrier on the grounds of economy, and with the belief that private industry could take over this job. However, the Joint Congressional Committee on Atomic Energy, after questioning industry representatives, concluded that private companies were not prepared to take over. For this reason, Joint Committee chairman Cole convinced the House Appropriation sub-committee (concerned with the USAEC appropriation) to put back funds for the USAEC to continue work on a pressurized water reactor of the breeder type. This particular reactor could be the pilot model for both industrial nuclear power plants, and for aircraft carriers. This would require the Navy to re-design such a plant for surface vessel use. However, this new approach, including the continuation of work on two types of submarine non-breeder reactors, would result in the Navy's getting a nuclear powered fleet with no serious delay.

RAW MATERIALS...radioactive minerals for nuclear work...

UNITED STATES: Additional lands both in Colorado and in Utah have now been segregated from the public domain for use in the USAEC's program of uranium exploration. This is a continuation of the USAEC's efforts to increase uranium ore production on the Colorado Plateau. In Colorado, the lands affected are in the Monogram Mesa area, and in the Gypsum Valley district, Montrose and San Miguel Counties. In Utah, the lands are in the Calf Mesa area in Emery County, and the Deer Flats area in San Juan County, Utah.

CANADA: Another new and parallel orebody to the original find has been reported by Gunnar Gold Mines on its main St. Mary's Channel property, immediately to the northeast of the main structure. Company officials have stated that while this new orebody may not be as big as the original find, it will be an important additionIn an area close to Gunnar, at Iso Uranium Mines' property, drilling has intersected a 28-ft. width of strongly faulted material, it has been reported. Upon completion of present drilling, work will be started further south on the property, where several seams of massive pitchblende have been uncovered previously.

IONIZING RADIATION...news and notes...

The amount of radiation which is needed to kill a living cell is quite small; the energy involved is probably only that quantity which the cell uses in one second of normal metabolic activity, L. H. Gray, of Hammersmith Hospital, London, told the first annual meeting of the Radiation Research Society, in Iowa City, Ia., recently. The action of radiation is so rapid, he observed, that it cannot be studied while in progress, but must be investigated by observing changes after they have taken place. He noted that at one time it was believed radiation changes in cells could be studied by investigating effects caused by certain chemicals which seem to be identical to those brought about by radiation. This is no longer thought possible, he emphasized. He pointed out that a number of chemicals bring about changes in the chromosomes of cells thereby causing mutations just as X-rays do, but research has shown that in spite of the apparent similarity, the two effects are produced by different mechanisms. While X-rays break the chromosomes along their entire length, chemical action breaks them in only one place, he stated. Further, there is also a difference in the stage of cell division at which the exposure has its maximum effect.

NEW PRODUCTS, PROCESSES & SERVICES...in the nuclear field...

FROM THE MANUFACTURERS: Model 1310, Remote Monitron, area monitor, is now in regular production by this manufacturer. The system, consisting of an ion chamber and a main chassis, is used for the measurement of relatively high gamma or neutron flux around reactors and accelerators. The manufacturer states that this 4000 cc. ion chamber may be located either at the main chassis or up to 100-ft. away, thus permitting use in places of high radiation level without exposure of the operator. A panel meter provides visual indication of gamma or neutron radiation up to 125 mr/hr. An alarm light, on the panel, indicates any meter reading arbitrarily preset from 5 to 125 mr/hr. Provision is also made for the operation of an external alarm system, and an external chart recorder may also be connected so that a written record is available of radiation level vs. time.....New radiochemicals added to this manufacturer's radioactive carbon compounds include: (1) Adenine-8-C14, of interest to workers in the fields of metabolism and enzymology of nucleic acids and their derivatives. (2) Pyruvamide-2-C14 and pyruvamide-3-C14, useful in the synthesis of labeled substituted succinic, tartaric, and lactic acids. (3) Acetyl bromide-1-C14 and acetyl bromide-2-C14, useful reagents for the organic chemist as a means of introduction of a labeled acetyl group into alcohols, acids, and amines. --Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

Multiplier phototubes, said by manufacturer to be superior to previously produced phototubes, are now commercially available. These Models 6291 and 6292 are stated to have high average output current, low leakage current, good resolution in scintillation counting, and high-signal-to-noise ratio. Their superiority is said to result from newly developed dynode structures, construction, and material.--Allen B. Du Mont Laboratories, Inc., Clifton, N. J.

NOTES: Fisher Scientific Co., Pittsburgh, distributor of chemicals and scientific apparatus, plans to sell some 25 radioisotopes in microcurie amounts. The low levels will make it unnecessary for the purchaser to secure USAEC permission, and they can be sent through the mail in screw capped vials, presumably bringing them within the reach of educational institutions with small budgets desiring radiochemicals for teaching purposes.

Figures for the first six months of this year for Atomic Instrument Co., Boston, indicate that this year's operation may be over the million dollar figure; last year it approximated three-quarters of that. The growth is attributed, by Mr. L. W. Cronkhite, president, to the firm's regular repeat instrumentation business for nuclear energy research. In addition, he points out, the firm has a number of large new items which are being delivered in the second six months of this year, involving units at approximately \$10,000, and others selling at from \$15,000 to \$20,000. Atomic is also rapidly getting into the wind tunnel, guided missile, data analyzer, and computer fields.

A production run of what are believed to be the longest boron trifluoride counters ever made has just been completed by Radiation Counter Laboratories, Skokie, Ill. These counters, measuring more than 6-ft., in length, are of all-aluminum construction. Twenty two of these 6-ft. counters are being used in a group by a southern university for use in neutron detection.

The NRX nuclear reactor, at Chalk River, Ontario, operated by Atomic Energy of Canada, Ltd., is being repaired and rebuilt. This reactor, which in December, 1952, after five years of operation, developed leaks, was shut down. This provided Canada with the first opportunity anyone has had to examine a major atomic reactor internally after a sustained period of full-scale operation. Investigation and study of the defects showed that it was scientifically and mechanically practicable to repair and rebuild the reactor, the project which is now underway.

BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Emergency Medical Treatment. Summarizes treatment recommended for large numbers of casualties in disasters such as atomic bombing, etc. Intended to assist physicians who, in such emergencies, would be working outside their usual field of practice. --Superintendent of Documents, Washington 25, D. C. (25¢)

Conference on Use of Isotopes in Plant and Animal Research. Report prepared by USAEC.--Superintendent of Documents, Washington 25, D. C. (\$1.25)

ATOMIC PATENT DIGEST...latest U. S. grants in the nuclear field...

Shielding container for the storage and transportation of radioactive sources.

Comprises (in part) a generally spherical member composed of radiation shielding material, this member having a cavity located generally at its center for removably holding a radioactive source, and also having a wedge-shaped slotted opening from its periphery to this cavity permitting access to the latter. A cover, composed of radiation shielding material, fits this slotted opening. A hinged mounting for this cover permits access to the radioactive source, while affording maximum shielding protection to the operator. U. S. Pat. No. 2,642,541 issued June 16, 1953; assigned to Tracerlab, Inc., Boston, Mass. (Inventor: John F. Young.)

Radiation protective jacket. Radiation absorbent garment for protecting the body from radiation having a wavelength absorbed by the body. The garment has a size, shape, and configuration adapting it to be disposed on the body and to enclose the body. The garment has inner and outer walls of woven fabric, and a non-rigid radiation absorbing shield disposed therebetween. This shield consists of several pre-formed blocks sustained in aligned side relationship to each other, each block having a thickness of at least one-half inch (approximately) and consisting of a mixture of calcium sulfate and a filler material consisting of inorganic compounds increasing the capacity of the calcium sulfate to radiation having a wavelength absorbed by the body tissues without decreasing the transparency of the calcium sulfate to radiation not absorbed by the body tissues. U. S. Pat. No. 2,642,542 issued June 16, 1953, to Marvin Weinberg, New York, N. Y.

Mass spectrometer ion source. Apparatus for producing and focusing ions. Comprises (in part) an ionization chamber, means for feeding vapors of a substance thereto, a filament, means for receiving electrons, the filament and the means being located near opposite sides of the chamber, thereby causing electrons to pass thereacross for forming ions from the substance. Several electrically isolated plates (spaced from each other) are outside of this chamber, openings in the plates are aligned with each other and with a slot in the wall of the chamber. Voltage regulating means are electrically connected with the wall and with the plates for establishing a fixed difference in potential between this wall and at least one plate adjacent to it. U. S. Pat. No. 2,643,341 issued June 23, 1953; assigned to United States of America (USAEC). (Inventor: Wallace T. Leland.)

Ionization gauge. In combination with a mass spectrometer adapted to transmit a beam of charged particles within a tank having a magnetic field passing therethrough, an ionization gauge within this tank displaced from the beam path. This gauge has a gaseous region therein communicating with the space in the tank, and means for projecting charged particles through the gaseous region under the influence of this magnetic field, and means for measuring the degree of ionization produced in this region by the particles. U. S. Pat. No. 2,643,342 issued June 23, 1953; assigned to United States of America (USAEC). (Inventor: Kenneth M. Simpson.)

Balanced double ionization chamber X-ray monitor. An X-ray intensity monitor which comprises (in part) the combination of a container divided by an ion collector plate into a larger and smaller ionization chamber, two conducting surfaces located in this chamber in confronting relationship to the faces of this ion collector plate, and means for detecting a change in the charge on this ion collector plate. U. S. Pat. No. 2,643,343 issued June 23, 1953; assigned to United States of America (USAEC). (Inventor: Leo James Rainwater.)

System for measuring radioactivity. Apparatus for measuring the intensity of radioactivity. Includes (in part) an ionization chamber producing an electrical current proportional to the intensity of the radioactivity, and a normally balanced detector circuit connected to the ionization chamber and producing a differential of balance in proportion to the electrical current. U. S. Pat. No. 2,643,344 issued June 23, 1953; assigned to Bendix Aviation Corp., Detroit, Mich. (Inventors: Ian H. McLaren, and Carl E. Alsterberg.)

Sincerely,

The Staff,
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